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The 44th Annual "Stella Bedggood Memorial Lecture" "Large-scale restoration of diverse, temperate native grasslands" by John Delpratt, Honorary Fellow, University of Melbourne.

Write-up by Emily Noble

Each year, FNCB members look forward with anticipation to the Stella Bedggood Memorial Lecture. The event, inaugurated in 1979 to honour the memory of one of the Club's most influential, well-respected and beloved members spotlights conservation-focused projects in our region. It provides a source of encouragement, hope, inspiration and celebration, showcasing amazing work preserving, optimising and restoring our natural environment, objectives close to Stella's heart.

This year's event felt particularly special because it was the first time in many, many months that field nat's had the opportunity to gather in person after the threat of Covid-19 pushed us online. We were joined by sixteen visitors, including members of Stella's family. Thanks to the technological wizardry of Graeme Lunt, 17 people were also able to tune in via Zoom.

I was given the wonderful privilege of introducing the Lecture and our guest speaker. In preparing for this, it soon became evident that Stella was a kindred spirit and it is a testament to her legacy that she is still an inspiration to field nat's like me, 45 years after her premature death aged just 62.

Not only that, but it is clear that we are still benefitting from her skilled and well-informed advocacy for the precious natural environments that we treasure. Armed with her detailed flora and fauna records, beautiful photos and extensive local knowledge, Stella successfully advocated for the improved reservation status of many of our favourite natural areas. These include Mt Beckworth, Mt Misery Garden and Berringa Flora & Fauna Reserve (now incorporated into Enfield State Park), Canadian Forest (now Woowookarung Regional Park) and reserves around Linton.

She loved this field naturalists club and served on the committee from 1958-1975 in every office-bearing role except President,

including 13 years as Secretary, a stint for which I have the utmost respect.
Whilst we head out into the field with our pockets filled with digital camera batteries, Stella's were probably full of celluloid film canisters. We use field guides or app's full of beautiful photos or illustrations that make it relatively easy to identify plants in the field, whereas Stella had to master latin and complex botanical terms to use the keys in "A Handbook to Plants in Victoria, Vol's 1 & 2" by Dr James H. Willis to identify the plants she came across in the field.
It is hardly surprising that her self-taught botanical knowledge garnered the enduring respect of Dr Jim Willis, the senior botanist at the National Herbarium of Victoria. She corresponded regularly with him, seeking his professional opinion on the specimens she found, and sharing specimens from locations in which they had not previously been recorded, building the knowledge-base of the herbarium and thus the State Government. This respect was best-illustrated when in 1986 Jim Willis recommended that the Enfield Grevillea be named in Stella's honour, and so it was: *Grevillea bedggoodiana*. Jim was also the guest presenter at the inaugural Stella Bedggood Memorial Lecture in 1979.

Stella is well-remembered as a fine mentor to other field naturalists. Bill Murphy, another life member of our Club who we sadly lost earlier this year, fondly recounted memories of Stella sitting on a log surrounded by eager field nat's, "Plants of Victoria" in hand, explaining how to work through the key to identify specimens. We only need to look at the amazing legacy left by Bill and his wife Patricia (Pat) who both acknowledged Stella as a key mentor, to see Stella's impact and skills.

Our guest speaker has had a similar impact on countless students and volunteers, including me, as both a lecturer, fellow grassland conservation volunteer and keen "botaniser". John Delpratt is an Honorary Fellow with the University of Melbourne, teaching plant production and seed technology at the University's Burnley campus for 25 years prior to his retirement. His involvement with native grassland conservation focussed initially on cultivation and seed production systems for grassland forbs and later on the reconstruction and management of diverse native grassland communities for both ecological and horticultural applications.

I hadn't caught up with John for a couple of decades since graduating from Burnley until I ran into him by chance seven years ago on a remote roadside in Mt Mercer whilst looking for the Spiny Rice-flowers I'd read about in a field nat's newsletter. When he asked if I'd found any "*Comesperma polygaloides*", I realised he probably wasn't the local farmer I'd assumed him to be and took a closer look at the face under the hat. I was very pleasantly surprised to see that it was my Hort. Project supervisor, John. It was great to learn that, in retirement, he was involved in a highly innovative grassland restoration project with the Woorndoo-Chatsworth Landcare Group to the west of us.

He still works with colleagues at the University installing and managing native grassy communities in urban areas too. While his primary focus is on restoring and conserving native plant communities, he also enjoys growing and studying a range of tuberous species that are difficult to establish in large numbers by direct sowing.

Any opportunity to get out in the field with John is well worth taking-up, so I highly recommend checking out Woorndoo-Chatsworth Landcare Group's Facebook page to find out about their events like flora surveys and community days, often with leading ecological and botanical practitioners, including current staff members from the National Herbarium of Victoria.

John began his presentation by acknowledging and paying his respects to the Eastern Maar traditional custodians of the land upon which most of his projects take place around Woorndoo, Chatsworth, Streatham and Wickliffe. He hopes that opportunities to work alongside the Eastern Maar people in caring for their country come to fruition in the future, perhaps in projects like restoring populations of Murnong (*Microseris scapigera*), historically a very significant food source for the Eastern Maar.

John noted that the UN Decade on Ecosystem Restoration (decadeon-restoration) aligns beautifully with the interests of the Woorndoo-Chatsworth Landcare Group, aiming to do their bit at a local level towards preventing, halting and reversing the degradation of ecosystems worldwide.

In the face of over-use of resources, accelerating environmental degradation and climate change, John acknowledged that we can feel overwhelmed by both the worthy but voluminous advice we get around what we should be doing at both the small & large scale, and the number of organisations and individuals that seem to do the exact opposite. This can be very discouraging, as evidenced by the number of young people in the environmental restoration field who burn-out quickly and change careers.

John turned to focus on things that can be done locally, as seen in the grassland restoration project at Woorndoo, to effectively reverse the degradation of critically endangered ecosystems, at least at a small scale and possibly a much larger scale if resources can be secured.

The Woorndoo Project in which John is involved is aimed at restoring critically endangered natural temperate grassland communities of south-eastern Australia, in this case on the Victorian Volcanic Plains. When John started in all of this in the 1980s, grasslands were just starting to achieve some prominence in conservation discussions. However, they were largely seen as far too complex and ancient to restore, so don't bother trying. Motivated by the immense botanical and horticultural value he saw in native grasslands, John thankfully overlooked this advice.

Whilst he doesn't claim that The Woorndoo Project has solved all of the challenges and achieved full restoration of VVP grasslands, it has successfully restored a new community from scratch that has the function and framework of a temperate grassland with as much diversity as the project team can conjure, a vast improvement on the highly degraded, high fuel-load, nearly monoculture weedscapes they replaced. At this stage, the primary focus is on what can be restored and how, rather than what's still missing. The hope is that through ongoing trials and research, the diversity of these communities can continue to be enriched over time, particularly when they can be sited near high quality remnant grasslands. In John's eyes, the project has already established a "proof of concept" and shown that the outcomes are more than worthwhile for the effort.

The site restorations have generally been undertaken in 1.25ha blocks, a tiny scale in a landscape context but vast from a horticulturist's perspective in terms of the management inputs required. They are implemented on the roadsides of three-chain roads, often bordered by Sugar Gum windbreaks, canola or wheat crops, bare earth ploughed as firebreaks which generally becomes infested with introduced pasture grasses like Toowoomba Canary-grass *Phalaris aquatica*. You can still find some special remnants remaining at the Woorndoo Cemetery, the Woorndoo Common and in sections of some roadsides such as Woorndoo-Streatham Road and Chatsworth-Wickliffe Road.

The "template" temperate grassland communities that the Woorndoo Project seeks to restore on the basalt plains are dominated by C4 grasses such as *Themeda triandra* Kangaroo Grass, interspersed with a wonderfully diverse range of perennial herbaceous species including Rice-flowers, daisies like Common Everlastings, Billy Buttons and Hoary Sunrays, lilies such as Milkmaids, Bulbine Lilies and Chocolate Lilies, small peas and orchids in the inter-tussock spaces. The organic crust between tussocks usually survives the annual or biennial regime of burning, often in Autumn, greening up again as soon as it rains.

These grasslands have a wonderful visual appeal, transitioning attractively through various colour phases. In early spring, they have a yellow glow with various Goodenia species, Golden Moth-orchids and Billy Buttons. In mid-spring, white takes over in the form of Milkmaids and Hoary Sunrays and in late spring, the grasslands turn blue and purple with the flowers of sun orchids, Chocolate Lilies and flax-lilies. The silvery/ cream wallaby grasses flower in early summer, with the purplish/copper heads of Kangaroo Grass coming through in January.

Underpinning methodology

Dr James Hitchmough, a fellow lecturer of John's at Burnley in the 1980s recognised in the western plains grasslands a possible low input, low cost way of managing parklands using local species. Using his knowledge of seed technology, John set about trying to work out how to produce enough seed of the forb component for trials of this idea.

In the late 1990s, (now Dr) Paul Gibson-Roy was one of John's students. He came to John with the idea that he'd research how to take the concept to a larger scale during his Honours studies. Despite John's initial reservations and scepticism, Paul has gone on to make a career out of grasslands. During his PhD, Paul set up an array of plots in clean (weed-free) soil containing increasing numbers of species and functional groups. These trials supported the hypothesis that the more species diversity and functional diversity achieved, the more resources that were used up, leaving fewer resources (nutrients/ water/ light) for weed species, increasing the resilience of the planted species and improving their resistance to weed invasion.

Three guiding principles were established:
1. You need sufficient good quality seed (and at the moment it isn't readily available, so to undertake a grassland restoration project using direct-seeding, you have to grow your own, creating a 1½-2 year lag time between when funding becomes available and when you can actually start implementing your project on ground).
2. You need to start with no, or reduced numbers of, weed seeds and buds in the soil because whilst established indigenous plant

communities are resilient to weed invasion, if you are starting from scratch, weeds will invariably get a faster start than indigenous species if they are present. They like the changes in soil characteristics and hydrology that humans have already wrought in these areas, and often have higher biomass, giving them a distinct advantage.
3. You need to have low nutrient levels, particularly nitrogen and phosphorus, because it evens the playing field. Although the local species respond well to nutrients, introduced species respond quicker and will outcompete the locals when more resources are available.

Whilst John aspired (and still aspires) to have a sophisticated system of seed production producing clean, pure, reliable seed to use, Paul saw the need to expedite the process in the short-term, taking the seed on the stems, putting it through a garden mulcher, mixing up 30 -40 species together in bulk and baling it in wool bales ready for sowing. This was then too coarse to flow through a standard direct-seeder so a turf aerator was modified to sow the seed at scale.

Various methods of seed production were trialled, with above-ground production the most successful. It was noted that high productivity can be achieved in a relatively small space. Various methods have also been trialled to achieve points 2 and 3 above. They were tackled independently at first, with little success. The most successful approach of many was to scalp the soil, removing 80-130mm from the top with a road grader (approximately 1000m^3/ha!) and taking it off-site, often to a local farmer happy to receive topsoil despite the weed seeds contained therein.

John's involvement in the Woorndoo Project began in earnest in 2017 when the Woorndoo Land Protection Group was awarded grant funds for a three-year project to extend the successful 2013 grassland restoration along Woorndoo-Streatham Rd initiated and implemented by David Franklin, Paul Gibson-Roy and the Group. The project included detailed scientific experiments on sowing and planting grassland species and the restoration of an additional 1.25ha of diverse, temperate native grassland.

One of the surprises for which there is yet to be an explanation is the appearance of species like Grassland Sundews and sun-orchids in the restoration site. These species weren't in the seed mix. Did they survive the scalping or did their tiny seeds make their way up the road from the remnant around the corner? Perhaps their seeds had blown onto the seedheads of species that were originally collected and then baled? Whatever the answer, they were an unexpected bonus.

Biomass management on the restored sites is traditionally by CFA burning, and it is that activity that has ensured the survival of the existing remnants until now. Whilst their burning wasn't necessarily for ecological purposes, it coincided well with the needs of the grassland species. They didn't burn the restoration site this Autumn because there was a concern that annual burning was depressing the wallaby-grass population too much by removing its seed However, because it has been yet another very wet year, there is an excess of biomass on the site, both introduced and native, that may have a similar negative effect on the wallaby-grasses.

It has taken about six years for the Themeda to really express itself in the restoration sites, with wallaby-grasses dominating initially. Whilst the Hoary Sunrays and Common Everlastings give the site much of its spring appeal, Lemon Beautyheads *Calocephalus citreus* are another attractive species that have established well. Under current management regimes, local annual plant species aren't doing so well.

Moving on to urban applications, John sees opportunities to use these techniques to establish grasslands and wildflower meadows in public and commercial landscapes, public reserves and private gardens. In 2011, various staff at Burnley including Sue Murphy and Chris Findlay initiated a project to establish an ornamental native grassland in the grounds of the Horticultural College at Burnley.

They trialled the removal of topsoil at various depths to see its efficacy in removing weed propagules, then introduced an inert covering of Castlemaine toppings to a depth of half an inch to suppress any remaining weed seeds/ buds in the soil. A variety of species were planted into the site, with a mix of wallaby-grass and plume-grass sown over the top. It has been very successful in establishing a diverse range of species and being resilient to weed invasion. It is mown during winter to keep it tidy.

More ambitious projects are now being implemented at Royal Park and along Gatehouse St in Melbourne by students Katherine Horsfall and Sophia Blosfelds, supervised by Professor Nick Williams and Steve Livesley. Katherine has established an extensive native grassland "flowering meadow" through direct-sowing into an imported, weed-free sand on an area mulched for more than a decade. Biomass is controlled by the "cut and remove" technique whilst the logistics around potential cultural burns in the future are tackled. A seed production area was established at Burnley to grow the seed for the project. Various weed suppression techniques were trialled to compare their effectiveness and the site was irrigated. Weeping Grass and Wheat-grass fared a little too well and are dominating the site, although a rich diversity of species persists in small numbers.

Katherine also has multiple plots set up at Burnley to trial the suitability of various mediums comprised of waste soils from building sites to see which ones can support a range of indigenous species. Some of the waste soils are mixed with gravel to provide a structural soil that can be driven on, making it suitable for a wide range of applications.
Sophia's plots adjoin Katherine's on Gatehouse Road. She has covered the inert sand with jute mat over the whole site. She has 10 x 10m plots with irrigation, aiming to compare the success of species establishment when sown in three different ways: all grasses, all forbs and a mixture of both, and whether or not they become effective seed production areas.

What could the future hold in terms of policy, practice and research? John posited that government policies could be introduced to ensure a sustained commitment to the conservation and expansion of species-rich temperate native grassy communities. As in America, this could even extend to mandates around the use of native species in certain applications/ areas such as roadsides to provide a sizeable market and workable economies-of-scale for businesses looking to establish seed production facilities or grassy understorey restoration/ management teams.

The future could also hold a viable seed industry supporting large-scale restoration. John's vision is that small, regional enterprises be established to produce sufficient seed for large-scale restoration and apply restoration and conservation of grassy communities, starting on crown land but hopefully spilling over into other public and private land if there were generous incentives provided, again as in America. Focussed support for Traditional Owner enterprises in this field would be a great initiative.

Developing a viable seed industry is fundamental to large-scale grassland restoration. Large-scale grass cropping systems and intensive production of forbs are required, along with a professionalisation and up-scaling of seed-testing, quality assurance and certification. John did caution anyone considering a move into seed production to consider their site location, local herbivore populations and adjoining land uses/ weed/pest issues very carefully. John showed an image of a vast seed production area that Paul Gibson– Roy had recently been contracted to set up by a mining company to achieve the required capacity to produce seed for site rehabilitation over many 100's of hectares of land. The image demonstrated many important features to ensure production of "clean" seed at scale, showing what was possible where considerable funds were available to invest in the necessary infrastructure.

In terms of what the future could hold in practice, John's work demonstrates that there could be ongoing restoration of roadsides dominated by exotic vegetation, that remnants could be repaired, restored and re-connected with appropriate approvals in place, that roadside corridors could effectively be widened and then restored by leasing land from adjoining property owners for the long-term at a reasonable rate, and large (50ha+), and that regional native grasslands could be established from scratch in addition to the Western Grassland Reserve, following the example of The Ocean Agency (theoceanagency).

Much benefit could be gained from research on producing, processing and using seed from a wider range of species, increasing our understanding of the key factors affecting field establishment of sown seed, synthetic sowing substrates for overlaying the existing soil surface, recovering degraded and partially degraded sites without topsoil removal and planning for a changing environment, probably a little easier in grassland systems than in many other ecological communities.

In summary, there is a great opportunity to restore diverse, temperate grasslands in our region and introduce them into various urban settings thanks to the scientific approach based on extensively researched seed and plant production techniques, intensive site preparation & ground-truthing, lateral thinking, trials & monitoring, adaptation and innovation of John and his colleagues, students and fellow volunteers over the course of his career and busy retirement.

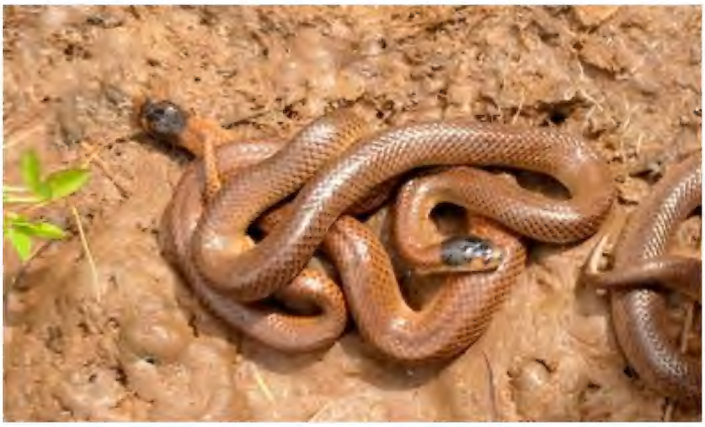
On a night during which we are honouring the wonderful legacy of Stella Bedggood, people like David Franklin who initiated the Woorndoo Project, Neville Oddie, who has conserved and restored the beautiful grassy wildflower meadows on his Chepstowe property that we'll visit on our November excursion and, our wonderful guest speaker tonight, John Delpratt, also deserve much more than just a mention. Our natural environments and our lives as nature-lovers would be much the poorer without such people and their passion, knowledge, initiative and innovation. Our warmest thanks to John for a fantastic Lecture that showcased the exciting opportunities ahead for diverse temperate grassland restoration

Native Grassland and VVP Field Trip, Sunday 6 November 2022

On Sunday 6th November, a mild sunny day in this extraordinarily wet spring, FNCB members gathered at the entrance to "Chepstowe" carefully parking on the gravel drive, the only dry place capable of supporting a vehicle. We were warmly welcomed by our host, Neville Oddie who then led our convoy to a parking area under the three large wind towers beside the Chepstowe – Pittong Road. Including the paddock opposite this is the highest point on the property and as Neville explained, is the top of a volcanic vent, part of Victorian Volcanic Plains Bioregion [VVP]. Neville provided the context of the geology of the area and pointed out the almost 360 degrees view available to be seen including landscape features beyond the extent of the VVP. They included to the North and NW, Mt Bolton, Mt Misery (porphyritic granite) and Ercildoune, Mt Calender (tertiary volcano), Mt Weatherboard, Mt Lonarch (hornblendic granodiorite), Mt Cole and Mt Buangor (granitic plutons) and Mt Chepstowe – Nanima Hill area to NE, Mt Emu (biotite granite) and granitic country (Mt Emu Cupola) to E, SE and S including the deeply weather granite pluton at Pittong, source for the kaolinite mine. He then referred to one of the largest volcanic maars in Victoria at Stockyard Hill, a volcanic complex south of Beaufort which we would be visiting after lunch.

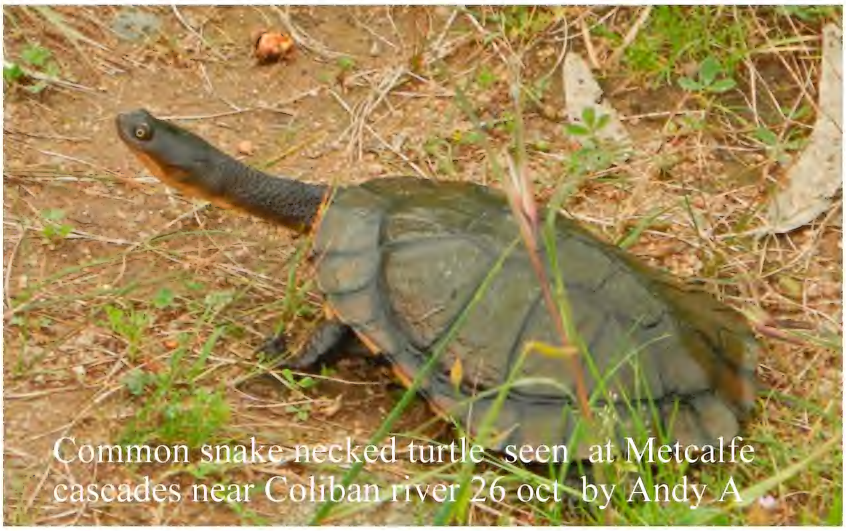
We wandered through the native grassland; Neville spoke of his efforts over many years to restore and maintain their condition. He passed around copies of a flora species list for the site (346 Streatham – Carngham Road) since 2009. Methods he has used included scalping topsoil and carefully disposing of scalped soil on areas such as former sheep camps. This had been partially successful in rehabilitating native species in the broader grassland. Assistance has been received from Friends of the Forgotten Woodlands for re-establishing Silver Banksia, Drooping Sheoak and Sweet Bursaria within the grassland plain. The Friends of the Forgotten Woodland INC. (FoFW) is a volunteer group working to rebuild woodland communities that were once a keystone in the ecology of the Victorian Volcanic Plains. For further information see: https://www.friendsoftheforgottenwoodlands.org.au In 2017 FoFW obtained a Victorian Government Biodiversity On Ground Action Grant to establish at least 30 genetically diverse seed orchards over a 3 year period located across the VVP from near Melbourne westward almost to Portland. Weed control is another issue especially for species such as Salsify and South African weed orchid which we saw on the day, both of which are easily spread. In wet years (such as this current one) Sweet Scented Vernal Grass, {*Anthoxanthum odoratum*}, to use Neville's words 'goes crazy' and can dominate areas.

Another system established has been dedicated mown grass fire breaks so that targeted and controlled burning of defined blocks of grassland can be carried out. He pointed out several of these areas where the impacts on biomass were more obvious to us once he had explained this. We paused to look under tiles that had been established as part of a long-term monitoring project on small reptiles such as the Striped Legless Lizard and small mammals found in grassland.



A large cluster of Little Whip snakes (*Parasuta flagellum*) was observed They are characterised by a black patch on the dorsal surface of the head which extends back onto the neck, and the black area around the nostrils and the snout. Neville explained they are common in his grassland and often observed under these monitoring tiles.

Other species sometimes seen but not on this occasion included Fat-tailed dunnarts. The grasslands also provide important breeding habitat for the Golden Sun moth which breeds on tussocks of several Wallaby Grass species. Neville controls sheep grazing to avoid interference with the flying time of the males and the emergence of the non-flying female moths by keeping sheep clear of the pasture until breeding has occurred.



Common snake-necked turtle seen at Metcalfe cascades near Coliban river 26 oct by Andy A

An unusual and rather surprising encounter for us in the middle of the grassland was an itinerant Testudine which we found in very wet patches of grass, not far from large ponds (dam). This was a rather bewildered Common Snake-necked Turtle *[Chelodina longicollis].* Note that this is called a turtle rather than a tortoise as the trend in Australia is to adopt the term ‘turtle’ for all Australian freshwater species [technically ‘true’ tortoises are terrestrial and do not occur in Australia] See pg 34 and 45 Robertson and Coventry (

2019) Reptiles of Victoria, A guide to Identification and Ecology.

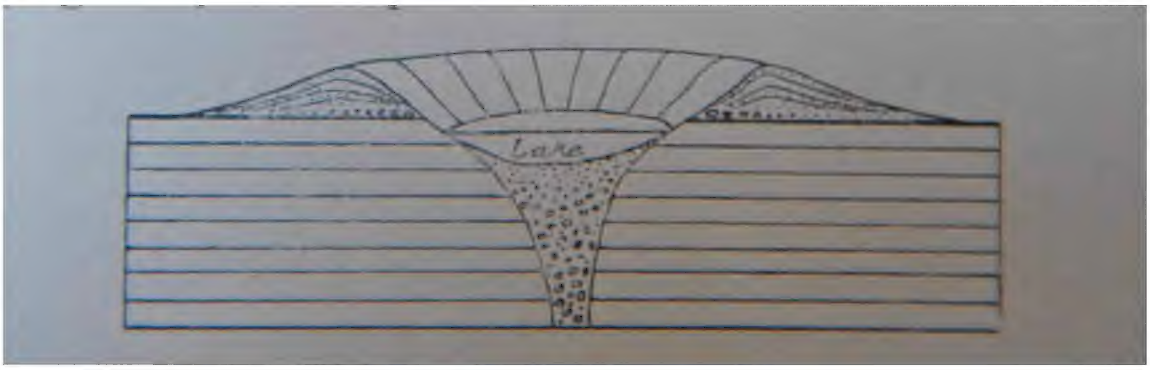
It was hard to obtain a clear photo of the animal's head and neck, but I have included another photo taken recently which clearly show these features for this species. Several recordings of frog calls were made on the FrogID app at the dam below the paddock, but they have not been processed by the Australian Museum yet.

At least 37 records had been entered onto the FNCB iNaturalist site by19 November and Club members that have joined this group can view the results and images for Chepstowe location online. Plant species featured in the posts include *Leucochrysum albicans var. tricolor*, *Chrysocephalum apiculatum, Thelymitra arenaria* (previously *T. pauciflora*), *Drosera hookeri, Hackelia suaveolens* (previously *Cynoglossum*), *Burchardia umbellata*, *Microtis unifolia*, *Convolvulus angustissumus*, *Arthropodium strictum, Goodenia pinnatifida, Veronica gracilis, Pimelea humilis, Pimelea curviflora, Glycine latrobeana, Diuris chryseopsis, Leptorhynchos squamatus, Gonocarpus tetragynus, Stylidium graminifolium,* and *Plantago varia*. A single Caper White Butterfly (*Belenois java*) was observed and photographed feeding on *Pimelea humilis*.

Departing Chepstowe we proceeded in convoy to Lake Goldsmith via Mena Park and Beaufort Roads because the Mt Emu Creek bridge on Streatham Road was closed following the floods. We had lunch in the sunshine outside the 1867 bluestone former schoolhouse now serving as the community centre. This had been kindly arranged for us by Neville through the Hall Committee.

More frog calls emanating from shores of the now very full Lake Goldsmith were recorded on the app. After lunch Neville showed us a detailed map of the Mt Emu Creek Catchment area hand drawn by a draftsman based on data provided by Biosis Research in the 1980s. Only two copies of this map were made, and it is now an extremely interesting historical map showing vegetation, natural features and land use. Just opposite the school, Neville showed us the old diversion channel constructed in the late 19th century to take water from Mt Emu Creek to direct it into Lake Goldsmith. Leaving the school, we travelled around the southern shore of Lake Goldsmith and below the northern crater rim of the Stockyard Hill complex. We stopped to view water birds on Lake Goldsmith and John G set up the spotting scope on the lake observing a musk duck. Travelling west to Stockyard Hill settlement we stopped to look at the ruins of the bluestone Stockyard Hill hotel built in 1865 and the Avenue of Honour dedicated in September 1918 and rededicated on Anzac Day 2022 as a community project to restore this memorial avenue.

We continued south down Stockyard Hill Road, past the maintenance yard for the wind towers and on the west side of the side of the volcanic maar to arrive at an elevated viewing point giving a clear view of the inside of the crater and the lake within. Neville described the scene for us defining this as an eruptive volcanic activity called a maar. Sherbon Hills describes a maar in his book Physiography of Victoria thus. "*When a new volcano is born, a fissure or a cylindrical pipe is formed in the Earth's crust. The adjacent rocks are shattered, and are sometimes thrown out by gaseous explosions, in the form of a low ring around the volcanic centre. Some volcanoes never grow beyond this stage, and others merely throw up a low ring of scoriae or tuff without emitting molten rock. The craters of such volcanoes are funnel-shaped holes which have blown out of the upper part of the crust. They are termed maars.*"
Neville told us that Stockyard Hill maar is comparable in size to another well-known Western District maar, Tower Hill. Both have lakes within the crater complex. Sherborn Hills also mentions several others including Lake Keilambete, near Terang, a crater also of this type. In the case of Stockyard Hill Neville said, it is likely that the western flanks blew out in the explosion(s). The central lake within is public land. The top and sides of the maar which now are now covered in wind towers are private land. The lake is reserved as Black Lake Wildlife Reserve and Neville has been involved in a local project to revegetate its' shores. Prior to this, the remanent larger plants were mainly Tree Violet (Melicystus dentatus).



Cross Section of a volcanic maar

Continuing south we paused again to view the plains landscape below us. Neville pointed in the direction of Blacks Creek Nature Conservation Reserve (NCR), our next destination, which he told us had been owned by his sister but had been sold to the state government because of its biodiversity value. He also told us about some of the peaks and homesteads we could see. Mt Buninyong to the east, Mt Elephant to the south and close by to SE, Mt Monmot which translates from French as 'my word'. We could also see the homestead of St Enochs settled by Scottish settlers and still occupied by another Scottish family, the Bains who today maintain its beautiful stone walls. There were springs at this site which made it an attractive location for a homestead.

Neville used this opportunity to tell us about the early settlers and the 'frontier wars' with the aboriginal population. He referred to the private journals of George Augustus Robinson appointed by the Governor of NSW as the Chief Protector of Aborigines in the Port Phillip District of NSW (later Victoria) in 1840s. Robinson was one of the most travelled government officials in Victoria in the 1840s. These journals reveal that after staying at Blacks and Steels homesteads, Robinson arrived at the homestead of St Enochs on 5th August 1841. Whilst staying there he visited what he called Monmot Hill and he sketched this feature in his written journal. Below is a self-deprecating passage interpreted from his handwritten journal by Ian D Clark from Federation University.

This hill is formed of scoria which on the west side of the crater are 50 feet perpendicular in large masses. The scoria lays all round in heaps and you can imagine you see the crater in action; there is the light pumice and the heavy curling twisted scoria like iron ore or melted glass. The masses lie on the west side of the crater, on the east it is but a few yards above the plains. Two gaps are but a few feet above the plain. This is not occasioned by decay or by the falling in or breaking down for there is no rollout, but was so from when the crater was in action. It would make in the hand of a clever artist a good scene. I brought away specimens. [Robinson Journal 5/8/1841 in Clark (2000)]

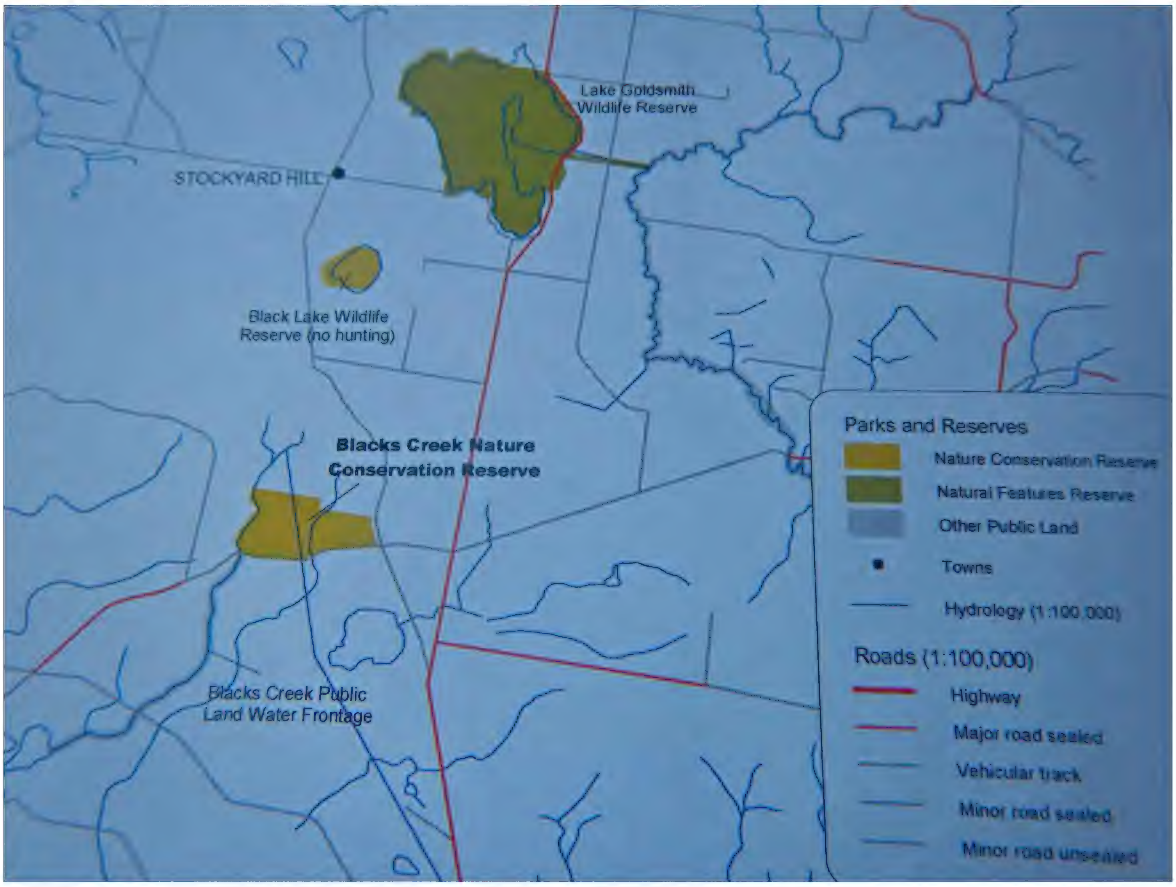
We drove south to the Carngham Streatham Road and headed west bordering Blacks Creek NCR to our north to the main entrance gate and stile about 2km away. Blacks Creek NCR represented one of the largest grasslands reserves in the VVP at the time of its reservation in July 2002.
Since the implementation of the National Reserve System programme (NRS) in 1992 all Australian States and territories have been working towards the development of a comprehensive, adequate an representative (CAR) system of protected areas to increase the reservation levels of Victoria's most threatened ecosystems particularly native grasslands and grassy Woodlands. The programme aimed to acquire areas of private land containing high quality samples of such ecosystems for addition to the reserve system……..the Blacks Creek grasslands were purchased due to their large area and good condition. [Blacks Creek Nature Conservation Reserve Management Statement DSE May 2005]

Neville mentioned that the area remained unploughed and had a history of light grazing which had maintained its biodiversity values. Periodic grazing continues to be maintained as part of the management system. There had been large populations of rabbits here in 1950s and 60s and he recalled visiting during that period. The NCR area is public land and access is permitted. Viewing the landscape from the stile we could see a large mob of kangaroos in the distance towards the boundary with St Enochs.

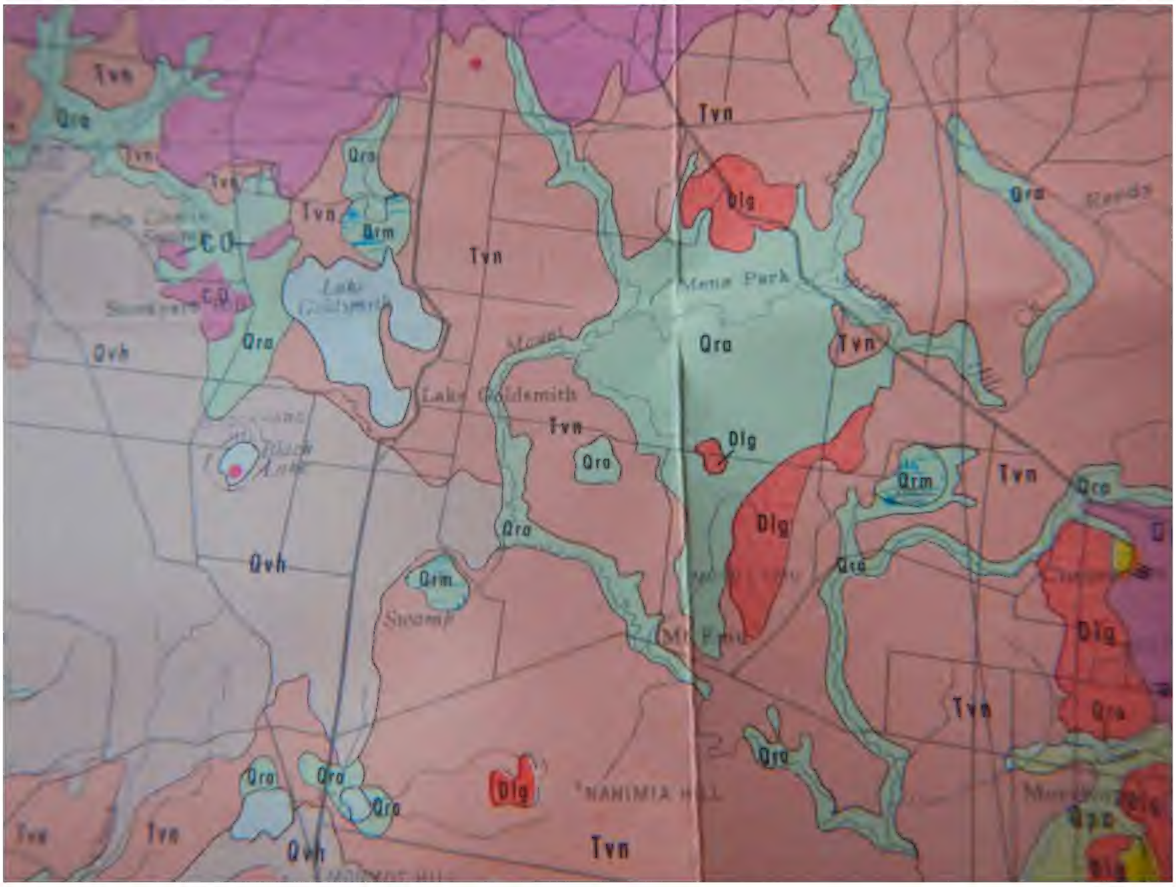
Margaret expressed FNCB members great appreciation to Neville for such an excellent field excursion and for passing on his considerable knowledge of the area. Neville suggested to members that they might like to visit the reserve after the tour which a few of us did. I focussed on visiting two roadkill sites I had noticed on the road beside the reserve, and I photographed and recorded these specimens on iNaturalist. Interestingly neither of the species, the Blotched Blue Tongue and the Common Blue Tongued Lizard were listed in the Provisional list of fauna recorded at Blacks Creek NCR (May 2005). I also discovered and joined a new project on iNaturalist for road kills on Australian roads which aims to collect relevant and useful data on this topic.

Report prepared by Andy Arnold.

Photos by Andy A and Val H



Map of reserves around Lake Goldsmith



A section of the Geo map area that we visited

"Chepstowe – Nanimia Hill area to SW, Mt Emu (biotite granite) and granitic country (Mt Emu Cupola) to W, SW and S"

Hoary Sunrays were common

A full Lake Goldsmith– not seen for many years

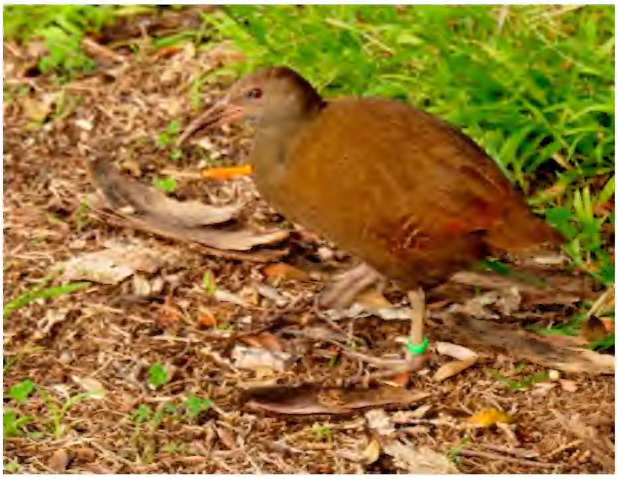
Postcard from Lord Howe Island

I visited this beautiful World Heritage Island off the north coast of NSW in October for 5 days ,particularly enjoying the abundant bird life, as well as the wonders of the coral, fish and green turtles of this southern most coral reef,.

The island has under 400 permanent residents and can only have 400 visitors at any one time. About 3/4 of their power needs is now supplied through the new solar farm with storage battery. All waste is either recycled or transported to the mainland. via the freight boat that visits fortnightly.

The most prolific birds were the Sooty Terns who nested on all the beaches up at the grass level and had no fear of people.

Another little bird, the White Terns have unusual habits. They do not build a nest, but lay their eggs in the fork of a branch– the Norfolk island pines were the favourite. The young, once hatched, have to learn to balance there. The parent bird feeds its chicks with small whole fish, instead of regurgitated food. It can hold up to 6 in its beak at once and still successfully feed the chick.

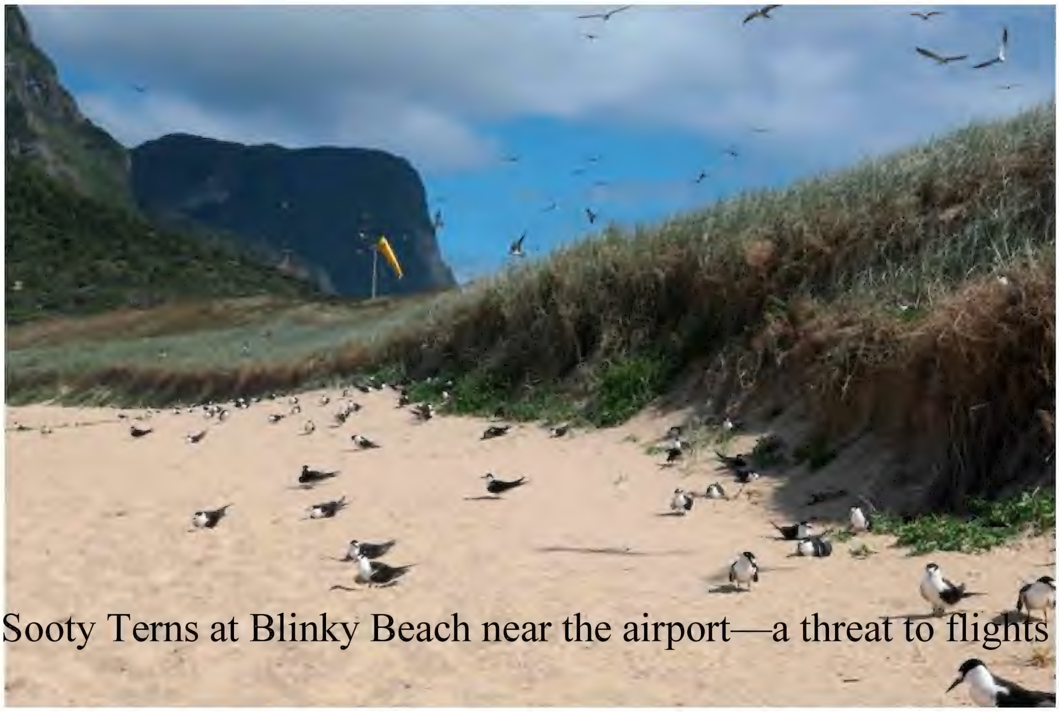


The Wood hen was another common flightless bird, which feeds in the leaf litter, only using its beak to scratch around. Its numbers have increased considerably, after a recent intensive pest eradication program- of cats, rats and mice, which seems to have been successful

Other birds seen were known from the mainland.– Sacred Kingfishers were always seen on the fence posts near the airport. Buff banded Rails were often on grassy areas. Two species, Golden Whistlers and Pied Currawongs, vary a little and are regarded as subspecies, the Currawong having a larger beak than ours.

Most of the island is covered in tropical vegetation including a number of palm species, Thatch / Kentia palms line the roadsides Some very big Banyan trees *Ficus Macrophylla* were also admired as we walked along forest paths

Val Hocking



Sooty Terns at Blinky Beach near the airport—a threat to flights

Great Southern BioBlitz wrap-up: .
Statistical summary: 1389 observations were submitted by 38 observers, covering 480 species. 173 people helped identify specimens/ corroborate identifications. 774 records are research grade. Elspeth submitted the most records, with 256 observations covering 145 species. Vireya, Ambika, Emily and "mononymous" rounded-out the top 5, all submitting more than 130 records. The most observed species in the Ballarat region was Pink Bells (*Tetratheca ciliata*), followed by Milkmaids, Laughing Kookaburra, Trailing Goodenia (our Club's emblem), Narrow-leaf Bitter-pea and Musky Caps.

Club order of Leon Costerman's new book:*Stories Beneath my feet* - For those who ordered, the cost of each book, which Margaret Rich has kindly collected is $75 per copy.
Please pay our Treasurer

Environment Victoria's AGM 2022
Bill attended on behalf of FNCB
CEO Jono LaNauze had what he described as a most exciting announcement which was meant to be delivered by Energy Minister Lily D'Ambrosio, but she was unable to attend.
Today's announcement commits Victoria to:

- Completely ending coal-burning power generation by 2035
- Increasing the Renewable Energy Target from 50% to 65% by 2030, and 95% by 2035
- A new emissions reduction target for 2035 of 75-80%
- Bringing forward the deadline for net zero from 2050 to 2045
- Putting power generation back in public hands by re-establishing the SEC as a major power generator in Victoria, generating 4.5 GW of clean energy within a decade

Jono outlined the significance of government plans to resurrect the State Electricity Commission and the push forward to (finally!) stop coal-fired generation by 2035, some 15 years earlier than 2050. The focus is now definitely on renewable energy, bringing government policy into line with Environment Victoria (EV)'s goal since 1980. There are plans now to meet with govt in the next 2 weeks and EV members have an opportunity to pose questions directly to the minister.

EV has also changed its strategic plan – a fair and fast transition from fossil fuels to renewable energy; healthy flowing rivers across Vic and MDB; a strong, cohesive and diverse Victorian environment movement; A creative, resilient and inclusive organisation capable of driving. The plan means real change at the scale we need and includes 100% clean energy by 2030 – support all households to become more efficient and go all-electric – urgently scale up training and education in careers in transition and clean energy.
In early October this year, EV took the EPA to court claiming that that publicly-owned organisation has not protected Victorians from climate pollution. The EPA court case is over now with a decision expected in a few months.

For more information see the EV Website –
environmentvictoria@org.au

Bill Elder

The Stella Bedggood Memorial Lecture: Fifty people attended, 36 in person and 14 via Zoom. Sixteen visitors attended in person (including four members of Stella's family) and ten visitors attended via Zoom. A huge thank you to Graeme, who did an amazing job with the technological side of the hybrid meeting.

Revision & update of "Discovering Ballarat's Bushland": The Sub-committee met on November 1 at Carol's house. Due to wet conditions, the proposed site reccy to assess Mt Mercer, Shelford and Illabarook has had to be re-scheduled to a later date Photos of specific organisms or sites are also being collected

Treasurer's Report: Opening bal. as at Oct. 25: $8,696.86

Income	$116.00
Expenses	$115.00
Closing bal.:	$8,697.86

Committee Motion: That the Treasurer's Report be accepted and any invoices tabled (reimbursement of $50 cash gift given to the Lake Goldsmith School/ Community Hall Committee by Emily) be approved.

Our next Club Meeting

Member's Images night on Fri. 2nd December 2022 at 7.30 pm In our meeting room at Fed Uni Gillies/ Gregory St
The topic is "Family Album (life-cycles)".

Members to give us a 5-10 minute presentation. Bring along a USB with a few photos upon which to base a story about the life-cycle of something to share with members at the December club meeting Images would also be good in the newsletter (i.e. nest, juvenile feathers, adult plumage, breeding plumage, various nymphal or larval stages and adult stage of beetles/bugs, cocoons/ pupal cases, caterpillars to moths/ butterflies, etc.).
Graeme has offered to organise the technology for a hybrid meeting again with in person and Zoom options. Please bring along or send to Graeme your photos by Thur 1st Dec

Sunday 4th December field trip, , 3.00-7pm - "Christmas break-up at "Stringybark", 61 Skipper Road, Scarsdale being hosted by property owners Bill and Kathy Elder. Bring afternoon tea, your own light dinner and a plate of nibblies/ dessert to share, camp chairs, Aerogard, camera, binoculars, field guides, thermos, afternoon tea and a light dinner, and dress to suit the weather (which includes gum-boots for the walk around Stringybark!).

Club Planning for 2023

The committee are calling for ideas/ for guest speakers/ topics/ field trip destinations/ volunteer leaders. , Also volunteers to write up the Guest speaker presentation or Excursion report for the Newsletter, so different members contribute each month.

Show and Tell

Carol Hall sent us great photos of the Eclipse on 8th November 2022
She used a Nikon D500 camera with a 200mm-500mm lens (effectively 750mm as the camera is a cropped sensor model). With the aperture at f8, exposure times varied between 1-5 seconds, ISO 2000 for the moon at totality and 800 when the moon was very bright. Some adjustments in Lightroom on the computer to clarify the images. A very worthwhile evening’s work – thank goodness it was a warm night!

Excursions and Meetings coming up

December 2022
Friday 2nd: FNCB Members night ***Family Album– Life cycles***
7.30 pm at our Meeting room at Fed Uni Gillies St
Sunday 4th Christmas Break up Field Trip—3.00-7 pm at Elder's home "Stringybark" 61 Skipper rd Scarsdale BYO tea.

Future events...
February 2023
Friday Feb 3rd 7.30 pm at Fed Uni Gillies St
Guest Speaker Ian Ashton Birdlife Australia

Sunday Feb 5th 9.30 am Excursion to view the birdlife of the Western Treatment Plant . Leader John Gregurke.
Note– bookings to attend must be made in advance, due to car permits needed for entry.

Next Committee meeting Tuesday 10th January at 4 pm at Emily's home followed by a BYO light tea

Committee

President	Margaret Rich
Secretary	Emily Noble
Treasurer	Kathy Elder
Committee	Andy Arnold
	Bill Elder
	Val Hocking
	Graeme Lunt
	John Petheram

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Editor: Val Hocking
Treasurer Kathy Elder
Website: http://fieldnatballarat.wordpress.com
Club email: ballaratfnc@gmail.com
Meetings - in person and may continue to be held via Zoom.
Members will be kept informed of arrangements each month.

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